

Supplemental Material

Fish consumption and mercury exposure among Louisiana recreational anglers

Rebecca A Lincoln¹, James P Shine¹, Edward J Chesney², Donna J Vorhees³, Philippe Grandjean¹, David B Senn^{1,4}

1: Department of Environmental Health, Harvard School of Public Health, Boston, MA

2: Louisiana Universities Marine Consortium, Chauvin, LA

3: Department of Environmental Health, Boston University School of Public Health, Boston, MA

4: Institute of Biogeochemistry and Pollutant Dynamics, Swiss Federal Institute of Technology (ETH-Zürich), Zürich, Switzerland

Corresponding Author:

David Senn

Institute of Biogeochemistry and Pollutant Dynamics

Swiss Federal Institute of Technology

Universitätstrasse 16, 8092 Zurich

Switzerland

Telephone: +41 44 632 78 86

E-mail: dsenn@alum.mit.edu

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Supplemental Material

1. Expanded description of laboratory methods

Hair samples were analyzed for total Hg by Direct Mercury Analysis, a method combining thermal decomposition, amalgamation, and atomic absorption spectrophotometry (EPA Method 7473; Milestone Direct Mercury Analyzer, Monroe, CT). The Direct Mercury Analyzer was calibrated with a liquid Hg (II) standard, with daily verifications across a range of Hg masses using two certified reference materials (CRMs) (MESS-2, marine sediment, 91 ng/g; and DORM-2, dogfish muscle, 4640 ng/g; National Research Council Canada). Procedural blanks and CRMs were analyzed after every 10-15 samples for quality control. Precision, estimated by replicate analysis of the CRMs, was better than 7% (RSD). In addition to these regular procedural CRMs, we tested the precision of Hg measurements in hair with several duplicate hair samples and found equally good precision (better than 6% RSD).

We used a conservative quantification limit of 1 ng Hg for reporting purposes, derived from repeated measurement of blanks and low-mass standards. Only 7 samples had a mass of Hg below this quantification limit, and in 4 of the 7 cases the available mass of hair was extremely small (less than 5 milligrams) and was determined to be insufficient to reliably determine the sample's Hg concentration. These 4 samples were excluded from subsequent statistical analyses. For the remaining 3 samples, where the concentration was below the limit of quantification (LOQ), but the mass of hair was sufficient for analysis, we retained the instrument-reported concentrations in the data set, since these were the best unbiased estimates of true concentration.

2. Exposure period calculation

Hair grows at a rate of about 1 centimeter per month, with the first centimeter of new hair growth contained in the scalp (National Research Council 2000), so a 2-centimeter segment cut at the scalp represents MeHg exposure 1-3 months prior to sampling. The survey's recall period of three months was chosen to approximately coincide with this exposure period as best as possible, given that MeHg exposure during the most recent month cannot be measured with a hair sample.

3. Hg data sources and angler Hg dose calculations

3.1: Fish Hg data acquisition. In order to quantify anglers' Hg intake and calculate the Hg dose metrics used in the regression analyses, fish Hg concentration data were gathered from a variety of sources. These sources ranged from small, regionally specific state monitoring databases (e.g., the Louisiana Department of Environmental Quality (LDEQ) Mercury Levels in Fish Database; LDEQ 2009) to larger databases maintained by the U.S. EPA and FDA (i.e. the U.S. EPA Mercury in Marine Life Database (U.S. EPA 2003), and the FDA Mercury in Commercial Fish and Shellfish Database (FDA 2006)). When Hg concentration data for a particular fish were available in more than one database, preference was given to data sources that: a) were regionally specific to Louisiana or the Gulf of Mexico; b) were compiled within the last 10 years; c) had complete documentation of data collection methods and quality control measures; and d) made the full data set available to the end user. When Hg concentration data from a preferred database were not available for a given fish or shellfish, values from the literature were used. When fish length data were available in a given database, we restricted calculations on Hg concentrations to those fish that meet the Louisiana length limits for

recreationally caught fish, so that our models best approximate the exposure that anglers might reasonably experience. In several of the databases (most notably LDEQ 2010), Hg values were presented for composite samples where multiple fish, usually caught in the same area and of the same length and weight class, were mixed and analyzed together. Values presented for the mean Hg and total sample size takes this into account (values reported are for the total number of fish caught), but no other descriptive statistics were calculated. For fish types that included more than one species or genus with available Hg information, we used the averages (or weighted averages by recreational or commercial landings when the information was available) as follows: for groupers, the given Hg is a weighted average by percent recreational landings in the Gulf of Mexico of each genus: *Mycteroperca* (75%) and *Epinephelus* (25%). For mackerel, the given Hg is a weighted average by percent domestic landings of the following species: king (8%), Spanish (6%), Atlantic (47%), and chub (39%). For sacalait/crappie, the given Hg is an average of black crappie and white crappie. For seabass, the given Hg is a weighted average by percent recreational landings in the Gulf of Mexico of Black seabass (85%) and other seabass (15%). For shark, the given Hg is an average of Atlantic sharpnose, blacktip, bonnethead, bull, and spinner sharks. See Table 1 below for fish Hg concentration values. In general, only data on total Hg in fish were available, so these values were used to quantify participants' total Hg dose. Speciation studies have shown that the vast majority (90-100%) of total Hg in most finfish is in the MeHg form (e.g., Bloom 1992). Thus, in most cases total Hg intake via fish consumption can be used as a reasonable proxy for MeHg intake.

3.2: Hg dose calculations. Several intermediate calculations were needed to convert fish Hg concentration data to daily Hg dose data. The first intermediate calculation corrected for the fact that participants were not asked to specify whether they ate canned albacore ("white") tuna,

or canned light tuna. Since the two types of canned tuna contain somewhat different average Hg levels (albacore: 0.35 µg/g; light: 0.12 µg/g; FDA 2006), we assumed that participants ate a mix of the two types that reflected the national market shares of albacore and chunk light canned tuna (25% albacore tuna and 75% light tuna; Dietary Guidelines Advisory Committee 2005), which we assumed to be consistent across the U.S. We then weighted each participant's canned tuna intake accordingly. This is consistent with the approach used for compiling nutrient data in canned tuna for NHANES analyses. For a further discussion, see Institute of Medicine 2007.

Another intermediate calculation accounted for the difference between standard fish portion size and sushi portion size. When participants reported their consumption of fish in sushi (assessed separately from standard fish meals), they identified the specific types of fish contained in their sushi as well as their consumption in pieces or rolls. We assigned a value of 0.43 fish meals per sushi piece or roll, given that a typical piece or roll contains 2 ounces (57 g) of fish (New York City Department of Health and Mental Hygiene 2007) and that the standard fish portion size for adults in the U.S. is 4.6 ounces (129 g) (U.S. EPA 1997).

4. Hg source information

The sources of the Hg ingested by participants were explored. In addition to reporting the types and amounts of seafood they consumed, anglers also reported what approximate proportion of their fish meals came from recreational as opposed to commercial sources – ‘caught’ as opposed to ‘bought.’ This question was asked separately for finfish and shellfish. We assigned percentage values to the source proportions categories reported by participants as follows: 100% recreational for ‘all caught’; 75% recreational for ‘most caught’; 50% recreational for ‘half caught and half bought’; 25% recreational for ‘most bought’; and 0% recreational for

‘all bought.’ Source percentages were combined with anglers’ reported consumption and estimated Hg intake from finfish and shellfish to produce estimates of the proportion of fish meals and Hg ingested that came from recreationally caught versus commercially bought fish.

5. Comparison of ‘predicted’ hair-Hg concentrations to measured hair-Hg concentrations

In order to assess how well each of the two Hg dose variables (“species-specific” Hg dose and “scaled” Hg dose) approximated participants’ actual hair-Hg, we used each Hg dose variable to calculate a “predicted” hair-Hg value for each participant, using the EPA’s 1-compartment model (U.S. EPA 2001). The calculation is as follows:

$$d = [(c * b * V) / (A * f * bw)] * HBR$$

where

d	=	oral dose (µg MeHg/kg-day)
c	=	blood concentration (µg/L)
b	=	elimination constant (0.014 day ⁻¹)
V	=	blood volume (5 L)
A	=	gastrointestinal absorption factor (0.95)
f	=	fraction of absorbed dose found in blood (0.059)
Bw	=	body weight (kg)
HBR	=	hair-to-blood ratio (250 µg MeHg/g hair : 1 µg MeHg/g blood = 1 µg MeHg/g hair : 4 µg MeHg/L blood)

$$\rightarrow d = [(c * 0.014 \text{ days}^{-1} * 5L) / (0.95 * 0.059 * Bw \text{ (kg)})] * [(1 \text{ µg MeHg/g hair}) / (4 \text{ µg MeHg/L blood})]$$

$$\begin{aligned} d &= [(c * 1.249) / Bw] * (1/4) \\ &= (c / Bw) * 0.3122 \end{aligned}$$

Although both Hg dose variables were equally associated with hair-Hg concentration in separate multivariable regressions ($p < 0.001$; $R^2 \approx 0.2$; see Table 2 in the main body of the paper), their absolute values were very different. The median species-specific dose was 0.11 µg/kg/day, while the median scaled dose was 0.009 µg/kg/day.

When entered into the 1-compartment model, the species-specific Hg dose produced predicted hair-Hg concentration values with a median of 30.7 $\mu\text{g/g}$ – a value that is almost 40 times the median measured hair-Hg of 0.81 $\mu\text{g/g}$. By contrast, the scaled Hg dose produced predicted hair-Hg values with a median of 2.3 $\mu\text{g/g}$: still an overestimate of the median measured hair-Hg concentration, but by a much lower factor.

Plots of predicted vs. measured hair-Hg were created for each Hg dose variable, and a least-squares line was fit for each plot (Figure 3 below). The slope of the least-squares line was 9.9 (intercept: 29 ng/g) for the species-specific dose variable (Figure 3A below), and this substantial departure from the 1:1 line (where one could expect the data to fall if the Hg dose variables perfectly predicted measured hair-Hg values) further reinforces our observation of over-reporting in the species-specific fish consumption variable. By contrast, the slope of the least-squares line for the scaled Hg dose variable was 1.2 (intercept: 3.3 ng/g), a more accurate prediction of measured hair-Hg concentration, albeit with a high degree of variability (Figure 3B below). The scaled Hg dose variable was developed to address potential over-reporting of species-specific fish consumption, and the fact that it produces predicted hair Hg concentrations which are fairly close to measured hair-Hg levels suggests that it may compensate to some degree for this over-reporting. In general, our findings suggest that if FFQs are used for Hg exposure assessment, especially over long recall periods (which tend to increase error; Connelly and Brown 1995), some calibration or validation of exposure using a biomarker such as hair-Hg may be warranted.

6. Differences between Survey Types

When in-person participants were compared to web-based participants, significant differences in education level and estimated Hg dose were found (see Supplemental Material, Tables 2 and 4), and qualitative differences in dietary composition were also noted (see Supplemental Material, Figure 2). In addition, the groups differed in their exposure levels; web-based participants had higher hair-Hg values than in-person participants (see Manuscript, Table 1). The difference in hair-Hg was mitigated (although still significant) when fish consumption, Hg dose, and other covariates (age, BMI, gender, ethnicity, and education level) were controlled for in multivariable regression. The unadjusted beta-coefficient for survey type regressed against log-transformed hair-Hg was 0.62 (95% CI: 0.47 to 0.77). When fish consumption and covariates were controlled for, that beta-coefficient decreased to 0.47 (95% CI: 0.31 to 0.64); when species-specific Hg dose and covariates were controlled for, it decreased to 0.40 (95% CI: 0.24 to 0.56); and when scaled Hg dose and covariates were controlled for, it decreased to 0.46 (95% CI: 0.29 to 0.62).

While this differences in exposure may result in part from different survey methods (web-based participants were self-selected, which could indicate a higher awareness of or concern about MeHg exposure), the two groups may also differ from each other in ways that are relevant to their exposure. For example, the difference in education levels between survey groups may suggest unmeasured socioeconomic differences relevant to Hg exposure and uptake. Indeed, anglers who participated in the web survey necessarily had access to the Internet, which could indicate a higher socioeconomic status than either the general population of Louisiana or other recreational anglers.

Overall, our results demonstrate that online recruitment and surveying is a valuable tool for studying large populations cost-effectively. Sixty-five percent of anglers in this study who completed the web survey also submitted a hair sample, indicating that biomarker data can be efficiently collected using a web-based approach. However, our results also suggest that care must be taken to account for underlying differences between participants surveyed online and those surveyed in person.

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Supplemental Material, Appendix A: Survey Instrument

SURVEY OF RECREATIONAL ANGLERS IN LOUISIANA: ONSITE INTERVIEW FORM

Record name of access site, date, time, interviewer, and intercept ID number before starting interview.

Access Site Name: _____

Interviewer Name: _____

Date: ____ / ____ / ____

Time: ____ : ____ a.m. / p.m. (circle one)

Intercept ID Number: _____

HOW WAS THIS PARTICIPANT RECRUITED?

- ☐ I approached participant
☐ Participant approached me (or my display/table)
☐ Other: _____

*Conduct each interview with a single angler. Have a study information flyer available. Begin the interview by saying: "Hi, my name is _____. I'm working with the Louisiana Universities Marine Consortium (LUMCON) and Harvard University, and we're interviewing **recreational fishermen in coastal Louisiana**. We're offering participants a **lure**, and also entering them in a **raffle for a \$25 gift certificate for outdoor sporting goods**. We're also offering you the opportunity to have a small sample of your hair tested for mercury and learn the results. Participation is completely **voluntary** and **confidential**. Will you take our survey?" If the person says "YES," tell them: "The survey takes about **15 minutes**, and you can **skip** any question you don't want to answer or **stop** the survey at any point." Place a new ID # sticker next to "Intercept ID Number" above, and continue with the survey. If the person says "NO," thank them and fill out a Missed Intercept Report.*

1. "Have you already participated in this survey?"

____ Yes → say "Thank you for your time." End interview and fill out a Missed Interview Report.

____ No → Continue with Question 2

____ Don't know → Explain that the purpose of this survey is to find out what kinds of fish people catch and eat, then ask the question again. If the participant still says "I don't know," say "Thank you for your time." End the interview and fill out a missed creel report.

2. "What's your zip code?" _____

3. "How many years have you been saltwater fishing in Coastal Louisiana?"

____ Number of years

____ Don't know

4. "How many years have you been eating saltwater fish from Coastal Louisiana waters?"

____ Number of years

____ Don't know

5. "In the last **three months**, which of the following choices **best describes** how often you've eaten **all kinds of seafood** like fish, shellfish, or shrimp, including what you catch, what others have given you, and what you buy at stores and restaurants?" (Read the following choices and check the participant's answer)

____ More than once a day

____ Once a day

____ Three times a week

____ Once a week

____ Once a month or less

____ Never

6. "In the last **three months**, how many **saltwater** fishing trips have you taken?" *If 0, skip to question #8.*
Trips _____

7. "In the last three months, which locations did you fish from?" *Check off or write each access point that participant names. Do not read these locations. After the participant identifies each location, ask "How many trips did you take from there?"*

_____ Cocodrie	Trips _____
_____ Venice	Trips _____
_____ Cameron	Trips _____
_____ Dulac	Trips _____
_____ Hackberry	Trips _____
_____ Hopedale	Trips _____
_____ Shell Beach	Trips _____
_____ Lafitte	Trips _____
_____ Grand Isle or Fourchon	Trips _____
_____ Buras or Point Sulphur	Trips _____
Other: _____	Trips _____
Other: _____	Trips _____
Other: _____	Trips _____
Other: _____	Trips _____
Other: _____	Trips _____
Other: _____	Trips _____

8. "When you fish in saltwater, do you fish most often from a private boat, a charter boat, the shore, or another method?"

_____ Private boat
_____ Charter boat
_____ Shore
_____ Another method

9. "In the last three months, how many **freshwater** fishing trips have you taken?"

Trips _____

10. "The next section is the main part of the survey." *Show participant the list of fish.* "I'm going to ask you about these fish and shellfish, and how frequently you've eaten them **in the past 3 months**. I'll go down the list, and for each type of fish please tell me which of these categories **best describes** how frequently you ate that fish in the past three months." *Show participant the categories, and read through them.* → "In the past **three months**, how frequently did you eat..." *If the participant responds with something other than one of the categories, say:* "Please pick the category that is the best match." *After completing the list ask:* "**Have you eaten any other fish in the last 3 months that you caught or that someone gave to you?** What are those? How frequently did you eat in the last three months?" *Write the fish name in an open box and check the reported frequency. After each fish ask* "Are there any others?" *Repeat until the participant says there are no more. Then ask:* "How about other fish from a **restaurant or store** that I haven't mentioned? How frequently did you eat...in the last three months?" *Ask again if there are any others until the participant says no.*

	Which best describes how often you ate this type of fish?							Which best describes how often you ate this type of fish?					
Type of Fish	Once or more a day	Three times a week	Once a week	Once a month	Once in the past 3 months	None	Type of Fish	Once or more a day	Three times a week	Once a week	Once a month	Once in the past 3 months	None
Speckled Trout							Sacalait or Crappie						
Redfish or Red Drum							Brim or Bluegill						
Red Snapper							Perch or Sunfish						
Mangrove or Grey Snapper							Goggle-eye						
Southern Flounder							All kinds of Shrimp						
Triggerfish							All kinds of Crabs						
White Trout							All kinds of Oysters						
Canned tuna							All kinds of Crawfish						
Tuna fillets or steaks							Salmon						
Cobia							Sushi? Type: _____						
Black Drum							Sushi? Type: _____						
Amberjack							Sushi? Type: _____						
Swordfish							Other: _____						
Spanish mackerel							Other: _____						
King mackerel							Other: _____						
Shark							Other: _____						
Grouper							Other: _____						
Freshwater Catfish							Other: _____						
Largemouth bass							Other: _____						

"Now we want to know where you got the fish that you reported eating in the last three months - how much of it was caught by you or given to you, and how much was bought at a store or restaurant."

11. *Point to the shellfish on the list and ask...* "Of the **shellfish** you reported eating (meaning shrimp, oysters, crawfish, and crabs), which of these best describes where you got it..."

- ☐ **All caught** by you or given to you
- ☐ **Most caught** by you or given to you
- ☐ **Half caught** by you or given to you
- ☐ **Most bought** from a store or restaurant
- ☐ **All bought** from a store or restaurant

12. *Point to the finfish on the list and ask:* "Of all the **other fish** (meaning the finfish, and not the shellfish), which of these best describes where you got it..."

- ☐ **All caught** by you or given to you
- ☐ **Most caught** by you or given to you
- ☐ **Half caught** by you or given to you
- ☐ **Most bought** from a store or restaurant
- ☐ **All bought** from a store or restaurant

13. "Do you freeze the fish you catch to eat later?"

- ☐ Yes
- ☐ No

"The last set of questions I asked you all had to do with how often you ate fish in the last 3 months. Now, for the next few questions, I'm going to ask you to think about an entire year."

14. "Compared to a typical year, have Hurricanes Katrina and Rita affected the amount of fish you've eaten that was **caught by you or given to you**?"

- ☐ Yes
- ☐ No (*if no, skip to # 16*)

15. "Since hurricanes Katrina and Rita, which best describes how frequently you've been eating fish that was **caught by you or given to you**?"

- ☐ More than once a day
- ☐ Once a day
- ☐ Three times a week
- ☐ Once a week
- ☐ Once a month or less
- ☐ Never

16. "During a **typical year**, [*if participant answered "yes" to #14, include: meaning one not affected by hurricanes*] ...Which best describes how much fish you eat that **you catch or someone gives to you**? (*Read the following choices and check the participant's answer*)

- ☐ More than once a day
- ☐ Once a day
- ☐ Three times a week
- ☐ Once a week
- ☐ Once a month or less
- ☐ Never

17. "Do other people in your household eat the fish you catch?"

- ☐ Yes → *Continue with question #18*
- ☐ No → *Skip to question #19*

18. "Can you tell me the age and gender of each person in your household who eat your catch?"

#1	Age: _____	Gender: M F
#2	Age: _____	Gender: M F
#3	Age: _____	Gender: M F
#4	Age: _____	Gender: M F
#5	Age: _____	Gender: M F
#6	Age: _____	Gender: M F
#7	Age: _____	Gender: M F
#8	Age: _____	Gender: M F
#9	Age: _____	Gender: M F

"Now I have just a few quick general questions..."

19. "How old are you?"

Age: _____

20. *Identify the participant as male or female*

_____ Male
_____ Female

21. "What is your height?"

_____ Feet, _____ Inches

22. "What is your weight?"

_____ Pounds

23. "How would you describe your race or ethnicity?"

_____ American Indian or Alaskan Native
_____ Latino
_____ African American
_____ White/Caucasian
_____ Asian or Pacific Islander
_____ Other: _____

24. "What is the last grade or year you completed in school?" (*Check the category that best fits the participant's response.*)

_____ Less than 8th grade
_____ Less than high school
_____ Graduated high school
_____ Some college
_____ Graduated college
_____ Beyond college
_____ Other: _____

_____ Still in school? (Check level of school completed)

"One of the goals of our research study is to determine people's exposure to mercury from fish consumption. Mercury is present in many types of fish, and some of the mercury that people eat in fish ends up in their hair. So, hair can be a good indicator of a person's exposure to mercury over the past several months."

25. "We are asking people who take this survey if they'd also be willing to give us a small hair sample. We will **send you the results** of your hair test, **along with information** about how to understand your results, **within three months**. All test results will be completely **confidential**. Would you be willing to give us a small hair sample so we can measure mercury? I can clip the sample for you now."

☐ Yes → *Continue with question*

☐ No → "Would you be willing to take a sample yourself at home and mail it to us, if I give you a kit and instructions?" *If YES, continue; if still NO, skip to question # 26*

If yes: "To send you your results, we need your name, address, and phone number. Your survey information and hair sample results will be kept totally confidential and we'll only refer to you by your ID number, except when we contact you to give you your results."

*If participant agrees to provide a hair sample, have them record their name and address in the **CONTACT INFORMATION** section on the next page. Make sure their name and address are legible when they are finished. Place another sticker with the same ID number as the survey next to their name. Place the third ID number sticker on the envelope for their hair sample. Follow instructions for clipping and processing a hair sample.*

26. "My supervisors may be contacting some of the people who participate in this survey to follow up on some questions, and to discuss potential future studies. Is it all right if he or she contacts you?"

☐ Yes

☐ No

*If yes, ask for the participant's name, phone number, and e-mail address, and a good time to contact them. Record the information in the **QUALITY CONTROL** section on the next page.*

"That is the end of the survey. Thank you for your time." *End interview.*

CONTACT INFORMATION

E-mail address: _____ Name: _____		
Address: _____ _____ _____		ID #: _____
		Sample Type
		Field Home No Sample Taken

QUALITY CONTROL

Name: _____	
Telephone number: _____	
Best time to call: _____	
Day of the week: _____	
Time of day: _____	

Supplemental Material, Table 1. Average mercury concentration values obtained for fish types consumed by Louisiana anglers.^a Where available, the scientific name, alternative common names, median, minimum (Min) and maximum (Max) mercury concentrations, standard deviation (SD), sample size (N), and fish sampling location given in the data source for each fish type are presented. Data source abbreviations are as follows: FDA - U.S. Food and Drug Administration (FDA 2006); FFWC – Florida Fish and Wildlife Conservation Commission (Adams et al. 2003); GOMP - Gulf of Mexico Program (Ache et al. 2000); LDEQ – Louisiana Department of Environmental Quality (Louisiana Department of Environmental Quality 2010); MML – Mercury in Marine Life Database (U.S. EPA 2003).

Common name	Scientific name	Alternative common names	Mean (µg/g)	Median (µg/g)	Min (µg/g)	Max (µg/g)	SD (µg/g)	N	Data Source	Fish sampling location
Alligator gar	<i>Atractosteus spatula</i>	Gar, Gar fish	0.23	0.12	0.01	0.66	0.29	4	LDEQ	Louisiana waters
Almaco jack	<i>Seriola rivoliana</i>	Bar jack, Blackjack	0.56	0.43	0.10	1.4	N/A	17	FFWC	Florida waters
Amberjack	<i>Seriola dumerili</i>	Greater amberjack	0.54	0.50	0.19	1.07	0.23	36	LDEQ	Louisiana waters
Atlantic croaker ^b	<i>Micropogonias undulatus</i>	Croaker,	0.051	N/A	N/A	N/A	N/A	11	LDEQ	Louisiana waters
		Fine barbel croaker								
Barracuda	<i>Sphyræna barracuda</i>	Sea Pike	0.77	N/A	0.14	2.5	0.50	36	GOMP	Gulf of Mexico
Black drum ^{b,c}	<i>Pogonias cromis</i>	Tambour	0.14	N/A	N/A	N/A	N/A	33	LDEQ	Louisiana waters
Blue catfish ^{b,c}	<i>Ictalurus furcatus</i>	Channel Cat	0.14	N/A	N/A	N/A	N/A	2,469	LDEQ	Louisiana waters
Blue marlin	<i>Makaira nigricans</i>		3.09	N/A	N/A	6.8	N/A	8	MML	Gulf of Mexico
Bluefish	<i>Pomatomus saltatrix</i>		0.88	N/A	0.36	2.00	0.44	44	GOMP	Gulf of Mexico
Bowfin ^{b,c}	<i>Amia calva</i>	Shoepick, Mudfish,	0.55	N/A	N/A	N/A	N/A	3,470	LDEQ	Louisiana waters
		Dogfish, Choupique								
Brim ^b	<i>Lepomis macrochirus</i>	Bluegill	0.15	N/A	N/A	N/A	N/A	728	LDEQ	Louisiana waters
Carp ^b	<i>Cyprinus carpio</i>		0.11	N/A	N/A	N/A	N/A	73	LDEQ	Louisiana waters
Clam ^b	Multiple species		0.017	0.016	0.001	0.057	0.011	44	GOMP	Gulf of Mexico
Cobia	<i>Rachycentron canadum</i>	Lemon, Lemonfish, Ling	0.92	0.63	0.01	3.02	0.81	43	LDEQ	Louisiana waters
Crab, snow	<i>Chionoecetes opilio</i>		0.22	0.41	0.063	0.41	N/A	4	Dabeka et al. 2004	N/A
Crabs ^b	<i>Callinectes sapidus</i>	Blue crab	0.18	N/A	N/A	N/A	N/A	176	LDEQ	Louisiana waters
Crawfish ^b	<i>Procambarus clarkii</i>	Red swamp crawfish	0.020	N/A	N/A	N/A	N/A	311	LDEQ	Louisiana waters
Eel	<i>Anguilla rostrata</i>	American eel	0.21	N/A	N/A	0.8	N/A	107	MML	Atlantic Ocean
Escolar	<i>Lepidocybium flavobrunneum</i>	Snake mackerel	0.74	N/A	N/A	N/A	0.29	20	Kaneko & Ralston 2007	Pacific Ocean
Freshwater catfish	Multiple species		0.049	<0.01	<0.01	0.31	0.084	23	FDA	N/A
Gafftopsail catfish ^b	<i>Bagre marinus</i>	Gafftop Catfish, Sailcat, Seacat	0.37	N/A	N/A	N/A	N/A	6	LDEQ	Louisiana waters
Goggle-eye ^b	<i>Lepomis gulosus</i>	Warmouth	0.26	N/A	N/A	N/A	N/A	249	LDEQ	Louisiana waters
Gray snapper	<i>Lutjanus griseus</i>	Mangrove, Mangrove snapper	0.19	N/A	0.03	0.54	0.12	124	GOMP	Gulf of Mexico
Grouper ^d	Multiple species		0.42	N/A	N/A	3.3	N/A	188	MML	Gulf of Mexico
Hake	<i>Brotula barbata</i>	Cusk, Cusk eel, Brotulla	0.014	<0.01	<0.01	0.048	0.021	9	FDA	N/A
Halibut	Multiple species		0.25	0.20	<0.01	1.52	0.23	46	FDA	N/A
Hardhead	<i>Arius felis</i>	Hardhead catfish,	0.16	N/A	0	1.6	0.23	200	MML	Gulf of Mexico
		Tourist trout								
Herring	Multiple species		0.044	N/A	<0.01	0.135	N/A	38	FDA	N/A

Supplemental Material, Table 1, Continued

Common name	Scientific name	Alternative common names	Mean (µg/g)	Median (µg/g)	Min (µg/g)	Max (µg/g)	SD (µg/g)	N	Data Source	Fish sampling location
King mackerel ^{b,c}	<i>Scomberomorus cavalla</i>	King, Kingfish	1.19	N/A	N/A	N/A	N/A	97	LDEQ	Louisiana waters
Lane snapper	<i>Lutjanus synagris</i>	Candy snapper	0.26	0.26	0.049	0.50	0.093	40	GOMP	Gulf of Mexico
Largemouth bass ^b	<i>Micropterus salmoides</i>		0.38	N/A	N/A	N/A	N/A	15,369	LDEQ	Louisiana waters
Lobster	<i>Homarus americanus</i>	American lobster	0.31	N/A	0.05	1.31	N/A	88	FDA	N/A
Mackerel ^c	Multiple species		0.15	N/A	N/A	N/A	0.10	432	Sunderland 2007	N/A (imported)
Mahi mahi ^b	<i>Coryphaena hippurus</i>	Dolphin, Dolphinfish, Dauphin	0.15	N/A	N/A	N/A	N/A	34	LDEQ	Louisiana waters
Mussel	<i>Mytilus edulis</i>	Blue mussel	0.061	0.044	N/A	0.50	N/A	641	MML	Atlantic Ocean
Oysters ^b	<i>Crassostrea virginica</i>	Eastern oyster	0.044	N/A	N/A	N/A	N/A	375	LDEQ	Louisiana waters
Perch	Multiple species	Sunfish	0.14	0.15	<0.01	0.31	N/A	5	FDA	N/A
Pollock	<i>Theragra chalcogramma</i>	Surimi, imitation crab meat	0.041	<0.01	<0.01	0.78	0.106	62	FDA	N/A
Pompano	<i>Trachinotus carolinus</i>	Common Pompano, Florida Pompano	0.15	0.12	0.033	0.49	0.086	64	GOMP	Gulf of Mexico
Red drum ^{b,c}	<i>Sciaenops ocellatus</i>	Redfish, Channel Bass	0.099	N/A	N/A	N/A	N/A	722	LDEQ	Louisiana waters
Red snapper ^b	<i>Lutjanus campechanus</i>		0.24	N/A	N/A	N/A	N/A	53	LDEQ	Louisiana waters
Sacalait ^{b,f}	<i>Pomoxis annularis</i>	Crappie	0.25	N/A	N/A	N/A	N/A	9,667	LDEQ	Louisiana waters
Salmon	Multiple species		0.014	<0.01	<0.01	0.19	0.041	34	FDA	N/A
Sardine	Multiple species		0.016	0.013	0.004	0.035	0.007	29	FDA	N/A
Scallop	Multiple species		0.05	N/A	<0.01	0.22	N/A	66	FDA	N/A
Seabass ^g	Multiple species		0.21	N/A	N/A	1.32	N/A	35	MML	Gulf of Mexico
Shark ^h	Multiple species		0.63	N/A	N/A	2.6	N/A	151	MML	Gulf of Mexico
Sheepshead ^b	<i>Archosargus probatocephalus</i>	Sheephead	0.096	N/A	N/A	N/A	N/A	376	LDEQ	Louisiana waters
Shrimp	Multiple species		0.043	N/A	N/A	1.02	N/A	82	MML	Gulf of Mexico
Snapper	Multiple species		0.19	0.11	<0.01	1.37	0.27	43	FDA	N/A
Southern flounder	<i>Paralichthys lethostigma</i>	Flounder, Doormat	0.091	N/A	N/A	N/A	N/A	91	LDEQ	Louisiana waters
Spadefish ^b	<i>Chaetodipterus faber</i>	Angelfish	0.29	N/A	0.02	0.47	N/A	9	FFWC	Florida waters
Spanish mackerel	<i>Scomberomorus maculatus</i>		0.57	N/A	0.02	1.7	0.33	179	GOMP	Gulf of Mexico
Speckled trout ^{b,c}	<i>Cynoscion nebulosus</i>	Spotted Seatrout, Speck, Yellowmouth	0.11	N/A	N/A	N/A	N/A	555	LDEQ	Louisiana waters
Spotted bass ^b	<i>Micropterus punctulatus</i>		0.48	N/A	N/A	N/A	N/A	708	LDEQ	Louisiana waters
Swordfish	<i>Xiphias gladius</i>		0.98	0.86	<0.01	3.22	0.51	618	FDA	N/A
Tilapia	Multiple species		0.01	<0.01	<0.01	0.07	0.023	9	FDA	N/A
Triggerfish	<i>Balistes capriscaus</i>	Trigger, Gray Triggerfish	0.13	0.15	0.06	0.17	N/A	3	FFWC	Florida waters
Tripletail	<i>Lobotes surinamensis</i>	Atlantic tripletail	0.22	N/A	N/A	1.28	N/A	82	MML	Gulf of Mexico
Tuna (canned, albacore)	<i>Thunnus alalunga</i>		0.35	0.34	<0.01	0.85	0.13	399	FDA	N/A
Tuna (canned, light)	Multiple species		0.12	0.075	<0.01	0.85	0.12	347	FDA	N/A
Tuna, blackfin ^b	<i>Thunnus atlanticus</i>		0.85	N/A	N/A	N/A	N/A	27	LDEQ	Louisiana waters
Tuna, fresh	Multiple species		0.38	0.32	<0.01	1.3	0.27	228	FDA	N/A

Supplemental Material, Table 1, Continued

Common name	Scientific name	Alternative common names	Mean (µg/g)	Median (µg/g)	Min (µg/g)	Max (µg/g)	SD (µg/g)	N	Data Source	Fish sampling location
Tuna, fresh, albacore	<i>Thunnus alalunga</i>		0.36	0.36	<0.01	0.82	0.15	26	FDA	N/A
Tuna, yellowfin	<i>Thunnus albacares</i>	Ahi, Yellowfin	0.16	0.14	0.06	0.26	0.08	8	LDEQ	Louisiana waters
Vermillion snapper	<i>Rhomboplites aurorubens</i>		0.29	0.095	0.035	1.3	0.38	17	GOMP	Gulf of Mexico
Wahoo	<i>Acanthocybium solandri</i>		0.53	0.19	0.021	3.4	0.69	58	GOMP	Gulf of Mexico
White bass ^b	<i>Morone chrysops</i>	Sand Bass, Silver Bass	0.34	N/A	N/A	N/A	N/A	563	LDEQ	Louisiana waters
White croaker	<i>Menticirrhus americanus</i>	Whiting, Southern Kingfish, Channel Mullet	0.19	N/A	N/A	0.78	N/A	61	MML	Gulf of Mexico
White trout	<i>Cynoscion arenarius</i>	Sand Seatrout, Sand Trout	0.48	N/A	N/A	1.2	N/A	99	MML	Gulf of Mexico
Whitefish	Multiple species		0.069	0.054	<0.01	0.31	0.067	28	FDA	N/A
Yellowtail	<i>Bairdiella chrysoura</i>	Silver perch	0.34	0.28	0.018	1.1	0.19	37	GOMP	Gulf of Mexico

^a For 7 fish types, Hg concentration data could not be located. Each of these fish types accounted for less than 0.01% of participants' total fish meals; they are: Bar jack; Giant clam (geoduck); Cubera snapper; Rainbow runner; Bluefin tuna; White perch, Whitefin.

^b Data provided for these species are based on composite samples where multiple fish samples, usually caught in the same area and of the same length/weight class, were mixed and analyzed together. The mean Hg value and total sample size takes this into account (values reported are for the total number of fish caught), but no other descriptive statistics can be calculated.

^c Includes only data from fish that conform to length requirements for recreational catch.

^d Grouper Hg value calculated as a weighted average by percent recreational landings in the Gulf of Mexico for each genus: *Mycteroperca* (75%) and *Epinephelus* (25%) groupers.

^e Mackerel Hg value calculated as a weighted average by percent domestic landings for each species: king (8%), Spanish (6%), Atlantic (47%), chub (39%).

^f Sacalait/crappie values calculated by averaging Hg concentrations for black crappie (0.26 ppm) and white crappie (0.23 ppm).

^g Seabass values calculated by weighting Hg concentrations by percent recreational landings in the Gulf of Mexico for Black seabass (85%) and other seabass (15%).

^h Shark values calculated by averaging Hg concentrations for Atlantic sharpnose (0.37 ppm), blacktip (0.712 ppm), bonnethead (0.548 ppm), bull (0.792 ppm), and spinner (0.750 ppm) sharks.

N/A: Not available

Supplemental Material, Table 2. Selected percentiles of species-specific fish consumption, species-specific Hg dose, and scaled Hg dose for study participants by survey type. Results are presented first for the full group, and then shown separately by survey type, with p-values indicating the significance of the differences between the two survey type groups. It is important to note that the species-specific fish consumption variable is likely to be an overestimate of anglers' true consumption, and the reader is encouraged to take caution when interpreting these results. See the main body of the paper for a further explanation of this over-reporting of fish consumption.

	Survey type	N ^b	Mean	50 th	75 th	90 th	95 th	p-value ^a
Species-specific fish consumption (meals/day)	All	534	0.70	0.58	0.86	1.3	1.7	0.33
	In-person	196	0.71	0.60	0.90	1.3	1.6	
	Web-based	338	0.70	0.57	0.83	1.3	1.7	
Finfish consumption (meals/day)	All	534	0.41	0.33	0.53	0.77	1.0	0.0015
	In-person	196	0.36	0.29	0.46	0.71	0.97	
	Web-based	338	0.44	0.36	0.55	0.78	1.1	
Shellfish consumption (meals/day)	All	534	0.28	0.21	0.35	0.57	0.73	<0.0001
	In-person	196	0.35	0.26	0.46	0.63	0.86	
	Web-based	338	0.25	0.19	0.32	0.46	0.64	
Species-specific Hg dose (µg/kg/day)	All	533	0.15	0.11	0.19	0.28	0.38	0.011
	In-person	195	0.13	0.095	0.18	0.25	0.31	
	Web-based	338	0.16	0.12	0.19	0.33	0.42	
Scaled Hg dose (µg/kg/day)	All	533	0.017	0.0090	0.025	0.037	0.044	0.72
	In-person	195	0.016	0.0093	0.025	0.034	0.038	
	Web-based	338	0.018	0.0086	0.025	0.038	0.045	

^a p-value from Wilcoxon Rank-sum test for difference between survey groups

^b Sample counts vary due to missing data.

Supplemental Material, Table 3. Select percentiles of Louisiana anglers' rates of consumption for each fish species or type that was reported consumed over the 3 months prior to the survey, excluding those consumed extremely infrequently^a. Consumption was reported as a frequency (never, once in the past 3 months, once per month, once per week, 3 times per week, once per day or more) and then converted into an equivalent number of meals per day (0, 0.01, 0.03, 0.14, 0.43, 1). Several fish types were reported consumed both as fish meals and as sushi meals, and in those cases, meals of the same fish type are summed. Means and selected percentiles of meals per day are presented for the full survey group.

Fish type	Mean	50th	75th	90th	95th
Amberjack	0.0041	0	0	0.011	0.033
Atlantic croaker	0.0026	0	0	0	0
Black drum	0.0085	0	0.011	0.033	0.033
Blue catfish	0.00027	0	0	0	0
Brim	0.0056	0	0	0.011	0.033
Cobia	0.0069	0	0	0.011	0.033
Crab, snow	0.00017	0	0	0	0
Crab	0.066	0.033	0.14	0.14	0.14
Crawfish	0.045	0.011	0.033	0.14	0.14
Escolar	0.00036	0	0	0	0
Freshwater catfish	0.036	0.011	0.033	0.14	0.14
Gafftopsail catfish	0.00062	0	0	0	0
Goggle-eye	0.0034	0	0	0	0.033
Gray snapper	0.0080	0	0	0.033	0.033
Grouper	0.0061	0	0	0.011	0.033
Halibut	0.00027	0	0	0	0
King mackerel	0.0014	0	0	0	0
Largemouth bass	0.0081	0	0.011	0.033	0.033
Mahi mahi	0.0016	0	0	0	0
Oysters	0.033	0.011	0.033	0.14	0.14
Perch	0.0049	0	0	0.011	0.033
Pompano	0.00080	0	0	0	0
Red drum	0.060	0.033	0.033	0.14	0.14
Red snapper	0.013	0	0.011	0.033	0.033
Sacalait	0.0086	0	0	0.033	0.033
Salmon	0.023	0	0.018	0.054	0.14
Seabass	0.00012	0	0	0	0
Shark	0.00029	0	0	0	0
Sheepshead	0.0016	0	0	0	0
Shrimp	0.14	0.14	0.14	0.43	0.43
Southern flounder	0.014	0	0.011	0.033	0.033
Spanish mackerel	0.00054	0	0	0	0
Speckled trout	0.092	0.033	0.14	0.14	0.14
Swordfish	0.0011	0	0	0	0.011
Tilapia	0.00047	0	0	0	0
Triggerfish	0.0019	0	0	0	0.011
Tripletail	0.00021	0	0	0	0
Tuna, canned	0.040	0.011	0.033	0.14	0.14
Tuna, blackfin	0.00027	0	0	0	0
Tuna, fresh ^b	0.030	0.011	0.033	0.14	0.14
Tuna, yellowfin	0.00041	0	0	0	0
Wahoo	0.0017	0	0	0	0
White bass	0.00027	0	0	0	0

Supplemental Material, Table 3, Continued

Fish type	Mean	50th	75th	90th	95th
White croaker	0.0020	0	0	0	0
White trout	0.017	0	0.011	0.033	0.14
Whitefish	0.00028	0	0	0	0
Yellowtail	0.0010	0	0	0	0.0040

^aThe following fish types were reported consumed but had a mean consumption rate <0.0001 meals/day and a 95th percentile of 0 meals per day: Alligator gar, Almaco jack, Barracuda, Bar jack, Blue marlin, Bluefish, Bowfin, Carp, Clam, Giant clam, Cubera snapper, Eel, Hake, Hardhead, Herring, Lane snapper, Lobster, Mackerel, Mussels, Pollock, Rainbow runner, Sardines, Scallops, Snapper, Spadefish, Spotted bass, Albacore tuna, Bluefin tuna, Vermillion snapper, White perch, Whitefin.

^b Type otherwise unspecified.

Supplemental Material, Table 4. Anglers' demographic and overall fish consumption information stratified by survey type. Results are presented first for the full group, and then shown separately by survey type, with p-values indicating the significance of the differences between the two survey type groups.

		PARTICIPANTS			
Angler Group		All (N=534)	In-person (N=196)	Web-based (N=338)	p-value ^c
		N ^a (%)	N (%)	N (%)	
Sex	Male	475 (89)	170 (87)	305 (90)	0.27
	Female	59 (11)	26 (13)	33 (10)	
Age (years)	19-35	138 (26)	32 (16)	106 (32)	0.001
	36-46	143 (27)	64 (33)	79 (24)	
	47-54	118 (22)	46 (23)	72 (21)	
	55-84	133 (25)	54 (28)	79 (24)	
Race	White	512 (96)	185 (94)	327 (97)	0.27
	Non-white	22 (4)	11 (6)	11 (3)	
Education	High school degree or less	128 (24)	88 (45)	41 (12)	<0.0001
	Some college ^b	129 (24)	45 (23)	84 (25)	
	College degree	167 (31)	48 (24)	119 (35)	
	Post-college or graduate	109 (21)	15 (8)	94 (28)	
BMI	<25	130 (24)	39 (20)	91 (27)	0.11
	25-30	235 (44)	96 (49)	139 (41)	
	≥30	168 (32)	60 (31)	108 (32)	
Fish consumption	Once per month or less	37 (7)	10 (5)	27 (8)	0.21
	Once per week	295 (55)	94 (48)	201 (59)	
	Three times per week	192 (36)	90 (46)	102 (30)	
	Once per day or more	10 (2)	2 (1)	8 (2)	

^a Sample counts vary due to missing data

^b Includes Vocational/Technical school and Associate's degree

^c p-value from Chi-squared test for differences between survey group

Supplemental Material, Table 5: Louisiana recreational anglers' hair-Hg concentration ($\mu\text{g/g}$) stratified by levels of demographic variables, fish consumption, and estimated Hg dose (vertically) and by survey type (horizontally).

ANGLER GROUP		IN-PERSON PARTICIPANTS					WEB-BASED PARTICIPANTS						
		N ^a	Mean (SD)	Median	75 th	90 th	95 th	N ^a	Mean (SD)	Median	75 th	90 th	95 th
All		177	0.73 (0.49)	0.58	0.96	1.5	1.8	221	1.5 (1.3)	1.1	1.9	3.1	4.0
Sex													
	Male	152	0.77 (0.51)	0.62	1.0	1.5	1.8	202	1.5 (1.3)	1.1	1.9	3.1	4.0
	Female	25	0.53 (0.31)	0.44	0.75	0.96	0.99	19	1.4 (0.99)	1.1	1.9	2.7	3.5
Age (years)													
	18-39	34	0.69 (0.50)	0.62	0.85	1.3	1.7	72	1.6 (1.2)	1.2	2.2	3.4	4.5
	40-54	93	0.73 (0.47)	0.57	0.96	1.4	1.7	83	1.6 (1.6)	1.1	2.0	3.7	4.0
	55-84	50	0.77 (0.54)	0.55	1.0	1.5	1.9	64	1.1 (0.86)	0.90	1.3	2.3	2.9
Race													
	White	169	0.74 (0.49)	0.58	0.98	1.5	1.8	212	1.5 (1.3)	1.1	1.8	3.1	3.8
	Non-white	8	0.66 (0.46)	0.56	0.79	1.1	1.4	9	1.7 (1.5)	1.5	2.3	3.0	3.9
Education													
	High school degree or less	80	0.65 (0.43)	0.56	0.85	1.1	1.5	26	1.4 (1.4)	0.93	1.4	2.5	3.7
	Some college ^b	37	0.76 (0.54)	0.65	0.98	1.4	1.9	51	1.0 (0.67)	0.80	1.5	2.0	2.4
	College degree	46	0.82 (0.54)	0.59	1.2	1.6	2.0	76	1.6 (1.6)	1.1	2.0	3.2	4.1
	Post-college or graduate	14	0.88 (0.51)	0.70	1.1	1.7	1.7	68	1.7 (1.3)	1.4	2.1	3.5	4.3
BMI													
	<25	36	0.76 (0.55)	0.60	0.99	1.6	1.7	66	1.3 (1.0)	1.0	1.7	3.0	3.5
	25-29.9	88	0.65 (0.50)	0.65	1.0	1.5	1.9	96	1.4 (1.1)	1.2	1.9	2.7	3.7
	≥30	52	0.58 (0.40)	0.49	0.76	1.0	1.2	59	1.7 (1.8)	1.1	2.0	3.5	4.7
Fish Consumption													
	1x per month or less	8	0.73 (0.37)	0.78	0.96	1.1	1.2	15	1.0 (0.95)	0.68	1.2	2.1	2.7
	1x per week	85	0.67 (0.45)	0.53	0.85	1.2	1.6	126	1.4 (1.2)	1.0	1.8	3.2	3.9
	3x per week	82	0.78 (0.53)	0.65	1.0	1.6	1.8	76	1.6 (1.5)	1.2	1.9	2.5	3.7
	1x per day or more	2	1.6 (0.49)	1.6	1.8	1.9	2.0	4	2.6 (1.9)	2.4	3.6	4.4	4.6
Species-specific Hg dose (µg/kg/day)													
	Quartile 1 (0.0011-0.062)	51	0.48 (0.28)	0.44	0.58	0.80	1.1	44	0.90 (1.0)	0.66	0.86	1.8	2.2
	Quartile 2 (0.062-0.11)	53	0.71 (0.46)	0.57	1.0	1.2	1.4	50	1.3 (1.1)	0.89	1.6	2.8	3.6
	Quartile 3 (0.11-0.18)	38	0.93 (0.53)	0.78	1.3	1.7	1.9	64	1.4 (1.1)	1.2	1.7	2.8	3.4
	Quartile 4 (0.18-1.18)	34	0.94 (0.58)	0.89	1.3	1.7	2.0	63	2.1 (1.6)	1.7	2.4	3.9	4.6
Scaled Hg dose (µg/kg/day)													
	Quartile 1 (0-0.0052)	53	0.57 (0.30)	0.50	0.75	1.0	1.2	43	0.85 (0.73)	0.64	0.90	1.9	2.2
	Quartile 2 (0.0052-0.0091)	32	0.84 (0.53)	0.66	1.0	1.6	2.0	63	1.5 (1.2)	1.1	1.8	3.2	4.0
	Quartile 3 (0.0091-0.023)	47	0.68 (0.49)	0.57	0.96	1.3	1.6	53	1.2 (1.1)	1.2	2.3	3.2	3.6
	Quartile 4 (0.023-0.27)	44	0.93 (0.58)	0.74	1.3	1.8	1.9	62	1.9 (1.7)	1.6	2.1	3.5	4.6

^a Sample counts within subsets vary due to missing data.

^b Includes Vocational/Technical school and Associate's degree

Supplemental Material, Table 6: Linear regression of the natural log of hair-Hg concentration on three fish consumption and Hg dose metrics. Separate models were created for each metric. Results are presented stratified by survey type.

Main effect variables [β (SE)]		Covariates ^a [β (SE)]				Model Statistics		
Overall fish Consumption ^b		Species-specific Hg dose (ug/kg/d)	Scaled Hg dose (ug/kg/d)	Survey Type	Sex	Race	Education Level	Model R ² (Adj.)
Predictor	1x/week or less	3x/week or more	1x/day	Web-based	Male	Non-white	Some College	Post-Graduate
IN-PERSON PARTICIPANTS								
Fish Consumption	0.082 (0.27)	0.18 (0.27)	0.99 (0.57)	---	0.38* (0.16)	0.0031 (0.27)	0.21 (0.14)	0.31 (0.21)
Species-specific Hg dose	---	1.4** (0.52)	---	---	0.42* (0.16)	0.059 (0.27)	0.18 (0.14)	0.37 (0.21)
Scaled Hg dose	---	---	---	---	0.46** (0.16)	-0.018 (0.26)	0.19 (0.14)	0.28 (0.21)
WEB PARTICIPANTS								
Fish Consumption	0.47* (0.22)	0.51* (0.22)	1.1* (0.45)	---	0.081 (0.19)	-0.078 (0.27)	-0.17 (0.19)	0.30 (0.19)
Species-specific Hg dose	---	1.9**** (0.39)	---	---	0.19 (0.19)	0.021 (0.26)	-0.065 (0.19)	0.30 (0.18)
Scaled Hg dose	---	---	---	---	0.12 (0.19)	0.074 (0.27)	-0.12 (0.19)	0.30 (0.18)

^a Covariate referent groups are in-person survey type; female sex; white/Caucasian race; and an education level of high school degree or less

^b The main effect referent group for this model is overall fish consumption of 1x/month or less.

β Regression coefficient

SE Standard Error

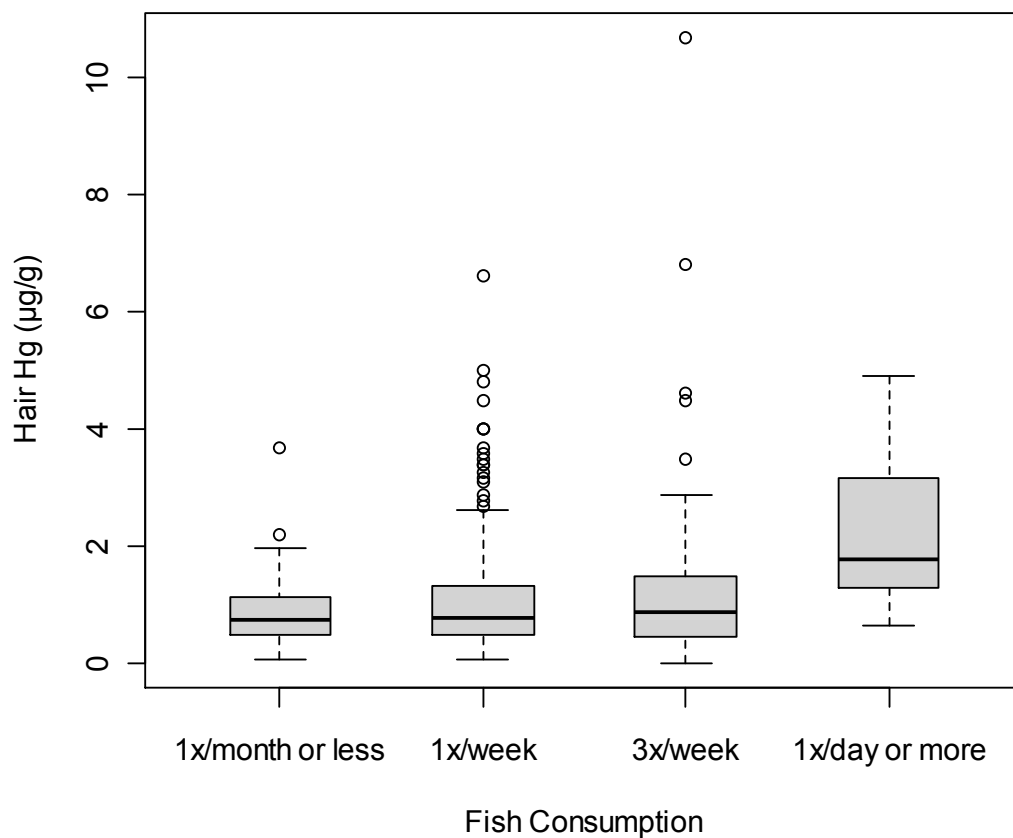
* p<0.05

** p<0.01

*** p<0.001

**** p<0.0001

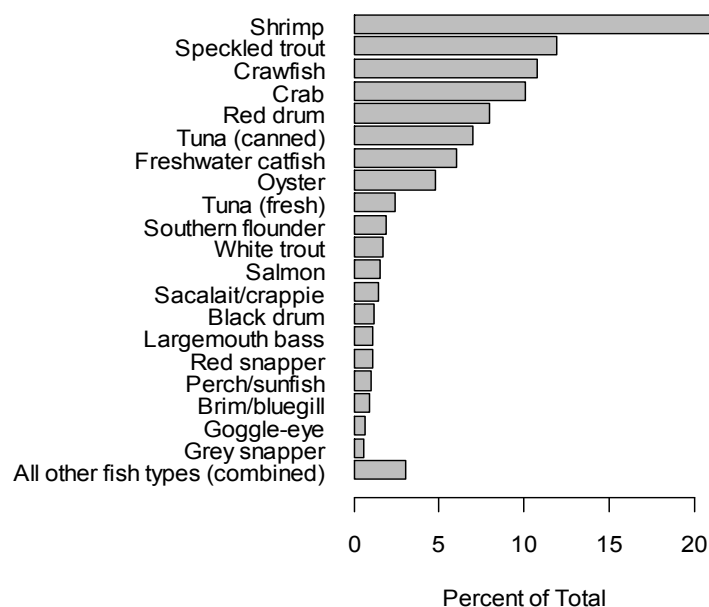
Supplemental Material: Figure 1



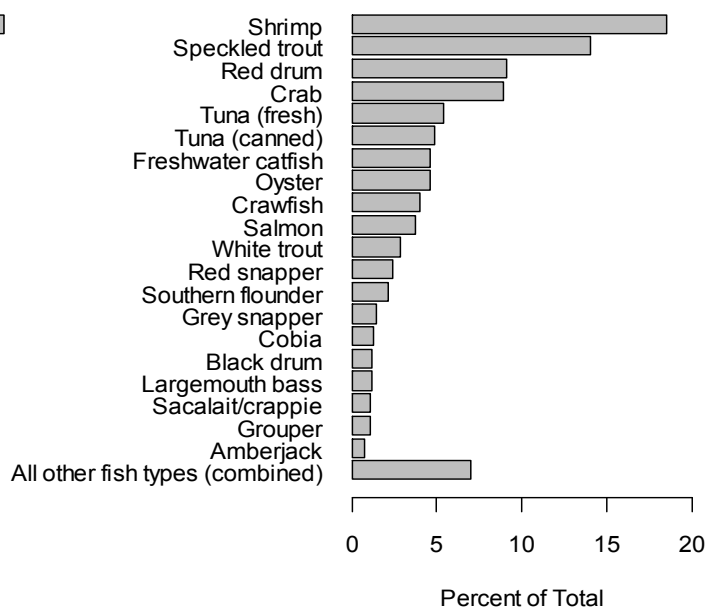
Supplemental Material, Figure 1: Louisiana anglers' hair-Hg concentration in relation to category of overall fish consumption. The lowest two original categories and the highest two original categories were collapsed to allow for stable estimation. The boxes show the 25th, 50th, and 75th percentiles, while the whiskers extend to the minimum and maximum, or to a distance 1.5 times the interquartile range (IQR) away from the median, whichever is smaller. Any points that fall outside the whiskers were considered outliers (o) but were retained in the data set for all statistical analyses. Sample sizes for the groups are 23 (1x per month or less); 212 (1x per week); 158 (3x per week); and 6 (1x per day or more).

Supplemental Material: Figure 2

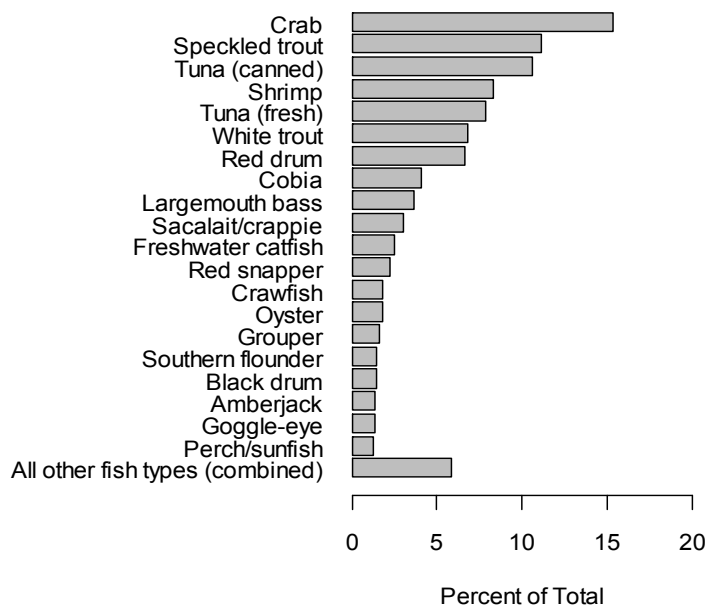
A: Fish Meals: In-person Participants



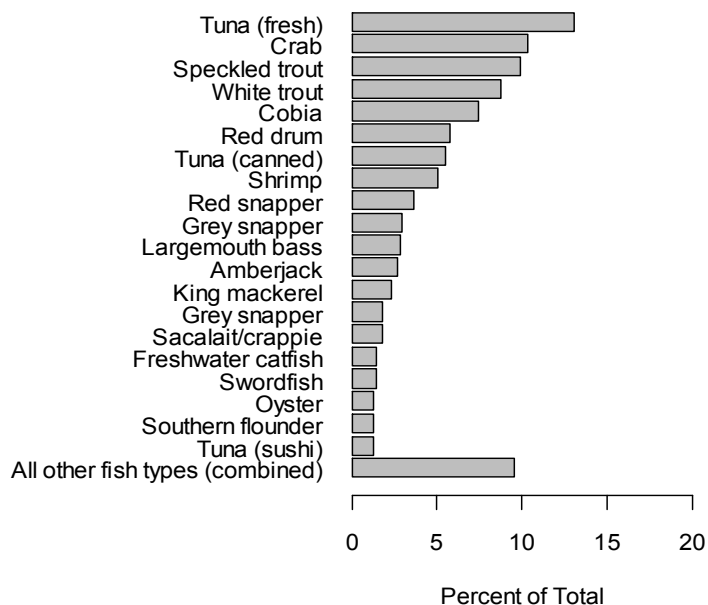
B: Fish Meals: Web-based Participants



C: Hg Intake: In-person Participants

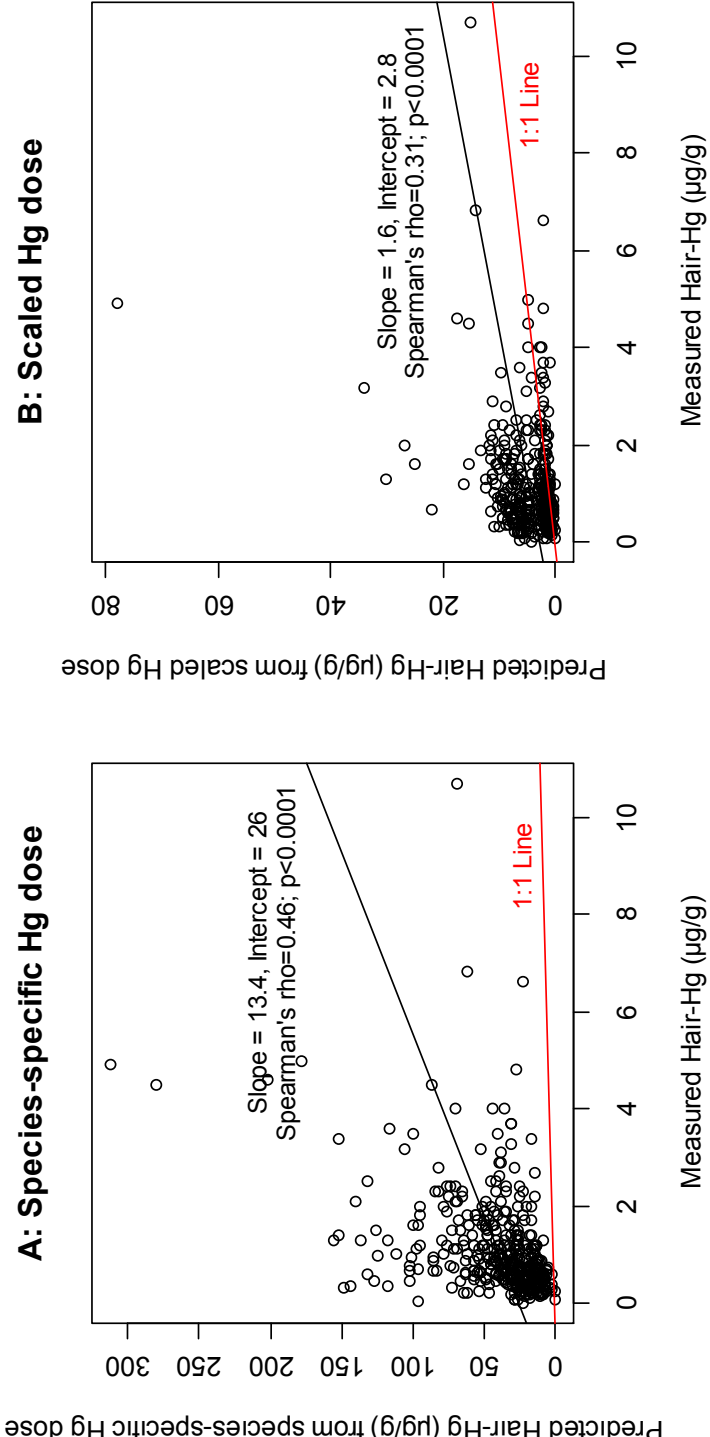


D: Hg Intake: Web-based Participants



Supplemental Material, Figure 2. Percent contribution of individual fish types to (A) total fish meals among in-person participants; (B) Hg intake among in-person participants; (C) total fish meals among web-based participants; and (D) Hg intake among web-based participants. The top 20 fish types are presented for each subgroup.

Supplemental Material: Figure 3



Supplemental Material, Figure 3. Scatterplots of Louisiana anglers' predicted hair-Hg concentrations, as calculated from species-specific (A) and scaled (B) Hg dose metrics, versus true measured hair-Hg concentrations. Lines in black represent the least-squares fit line for the association between predicted and measured hair-Hg; lines in red represent the 1:1 line.